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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,517	07/28/2003	Seiji Funaba	NEKO 20.511	4289
26304	7590	06/01/2005	EXAMINER	
KATTEN MUCHIN ROSENMAN LLP 575 MADISON AVENUE NEW YORK, NY 10022-2585				MAI, SON LUU
		ART UNIT		PAPER NUMBER
		2827		

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/628,517	FUNABA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Son L. Mai	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 18 April 2005.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-44 is/are pending in the application.  
 4a) Of the above claim(s) 5,6,12-14,16,20 and 22-24 is/are withdrawn from consideration.  
 5) Claim(s) 9 and 10 is/are allowed.  
 6) Claim(s) 1-4,7,8,11,18,19 and 25-44 is/are rejected.  
 7) Claim(s) 15,17 and 21 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 28 July 2003 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

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## DETAILED ACTION

### ***Election/Restrictions***

1. Claims 5-6, 12-14, 16, 20, 22-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there are no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 04-18-05. Accordingly, claims 1-44 are pending with claims 1-4, 7-11, 15, 17-19, 21 and 25-44 being presented for examination.

### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

4. The disclosure is objected to because of the following informalities:

On pages 8 through 10, the description does not match with the figures of the drawings. For example, "Fig. 6" should be --Figs. 16A-16C--.

On page 14, line 21, "1b" should read --1B--.

On page 17, line 3, "register" should be --resistor--. And in line 17, "sutbless" should read ----stubless--.

On page 34, lines 6, 10 and 12, the references "23" should be --22--.

Appropriate correction is required.

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5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 7-8, 25-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 7, "said memory device" in lines 1-2, lacks antecedent basis in the claim. It is not clear if the Applicants refer to the memory module or memory device of claim 1.

As to claim 8, "said memory device" in line 2, lacks antecedent basis in the claim. It is not clear if the Applicants refer to the memory module or memory device of claim 1. Further it is not clear which embodiment shows the second transfer gate as claimed?

As to claim 21, "said memory device" in line 2, lacks antecedent basis in the claim. Should it be "a memory device" or "the memory devices"?

As to claim 25, "said memory device" in line 6, lacks antecedent basis in the claim. Should it be "a memory device" or "the memory devices"?

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As to claim 30, "said data line" in line 1 lacks antecedent basis. Perhaps the Applicants mean "a bus line" or "a data signal"?

As to claim 34, "said connector" in line 3 lacks antecedent basis.

As to claim 35, "said connector" in line 3 lacks antecedent basis.

As to claim 37, "the level conversion circuit" (lines 17-18) and "said open drain type driver" (line 22) lack antecedent basis.

As to claim 39, "said memory device" in line 2, lacks antecedent basis in the claim. Should it be "a memory device" or "the memory devices"?

As to claim 40, "said memory device" in lines 1-2, lacks antecedent basis in the claim. Should it be "a memory device" or "the memory devices"?

As to claim 41, "said memory device" in line 2, lacks antecedent basis in the claim. Should it be "a memory device" or "the memory devices"? Further in line 17, "said memory modules" lacks antecedent basis.

As to claim 42, "said memory device" in lines 1-2, lacks antecedent basis in the claim. Should it be "a memory device" or "the memory devices"?

As to claim 44, "said plurality of line pairs" lacks antecedent basis.

Claims 26-44 are rejected for depending on claim 25.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

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applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-4, 11, 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Moriarty et al. (U.S. Patent 6,661,690) hereinafter referred to as "Moriarty".

Regarding claim 1, Moriarty teaches a memory module (figures 6 and 7) comprising a plurality of memory devices (28), which share a bus line (104), on a board (102), wherein the bus line connects terminals of said plurality of memory devices in a stubless configuration and an end of said bus line is terminated (by resistor 116).

Regarding claim 2, Moriarty teaches at least a part of said bus line is a strip line (104).

Regarding claim 3, Moriarty teaches that an effective characteristic impedance of said bus line is matched with a characteristic impedance of a line on a motherboard on which said memory module is mounted (see column 3, lines 19-23).

Regarding claim 4, Moriarty shows in figure 7, a termination circuit (116) is included and terminates the end of the bus line (104).

Regarding claim 11, Moriarty shows in figure 7, signal terminals of said plurality of memory devices connected in the stubless configuration are connected at one point on the bus.

Regarding claim 18, Moriarty shows in figure 7, the memory module is configured as a multi-chip module.

Regarding claim 19, Moriarty shows in figure 8A and 8B, the board of the memory module is divided into a plurality of boards (142, 144) and the plurality of

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boards are each connected by inter-board connection means (see column 10, lines 29-40).

***Allowable Subject Matter***

10. Claims 9-10 are allowed.
11. Claims 15, 17, 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
12. Claims 7-8, 25-44 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
13. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach the further limitation of a memory device of the memory module comprises an on-chip terminator terminating the bus line by turning on a transfer gate that is provided between one end of a termination resistor and a termination voltage, the other end of the termination resistor being connected to the terminal of said memory device connected to the bus line.

***Conclusion***

14. The prior art made of record is considered pertinent to applicant's disclosure. The cited references in the PTO-892 form disclose memory modules comprising memory devices including on-board terminating circuits.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Son L. Mai whose telephone number is 571-272-1786. The examiner can normally be reached on 8am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoai Ho can be reached on 571-272-1777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

05-30-05

  
Son L. Mai  
Primary Examiner  
Art Unit 2827